

**The Appendix is an integral part of
Certificate of Accreditation No. 370/2023 of 13. 7. 2023**

Accredited entity according to ČSN EN ISO/IEC 17025:2018:

VÚHŽ a.s.
CAB number 1053, Laboratories and Testing Laboratories
Dobrá 240, 739 51 Dobrá

Testing laboratory locations:

- | | | |
|-----------|---|------------------------|
| 1. | 621 - Chemical Laboratory | č.p. 240, 739 51 Dobrá |
| 2. | 622 - Metallographic Laboratory | č.p. 240, 739 51 Dobrá |
| 3. | 623 - Mechanical Properties Laboratory | č.p. 240, 739 51 Dobrá |
| 4. | 624 - Corrosion Laboratory | č.p. 240, 739 51 Dobrá |

The laboratory applies a flexible approach to the scope of accreditation.

Updated list of activities provided within the flexible scope of accreditation is available at the Laboratory from the Quality Manager.

The laboratory provides opinions and interpretations of test results.

1. 621 - Chemical Laboratory

Tests:

Ordinal number¹	Test procedure / method name	Test procedure / method identification²	Subject of the test
1.1	Determination of the content of Mn, Cu, Ni, Pb, V, Cr, by AAS-F method	PP 621-1.1 (ČSN EN ISO 10700; ČSN EN 24943; ČSN EN 10136; ČSN EN 10181; ČSN ISO 9647; ČSN EN 10188)	Steel, cast iron, iron
1.2	Determination of the content of C, Mn, Si, P, S, Cr, Ni, Mo, V, W, Ti, Al, Cu, Co, B, Nb – OES method	PP 621-1.2 (LECO manual)	Steel, cast iron, iron
1.3	Determination of the content of Cr (over 2 %) – potentiometric titration method	PP 621-1.3 (ČSN EN 24937)	Steel, cast iron, iron
1.4	Determination of the content of Si – by gravimetric method	PP 621-1.4 (ČSN 420512)	Steel, cast iron, iron
1.5	Determination of the content of Mg, Ca, Ni, Cu, Zn, Cd, Pb - by AAS-F method	PP 621-1.5 (ČSN ISO 7980; ČSN ISO 8288; ČSN EN ISO 5961)	Surface, waste and process water, solid waste extracts

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Subject of the test
1.6	Determination of ammonia nitrogen N _{amon} by spectrophotometry, ammonia and ammonium by calculation and total inorganic nitrogen by calculation	PP 621-1.6 (ČSN ISO 7150-1)	Surface, waste and process water, solid waste extracts
1.7	Determination of nitrite nitrogen by spectrophotometric method and nitrite by calculation	PP 621-1.7 (ČSN EN 26777)	Surface, waste and process water, solid waste extracts
1.8	Determination of nitrate nitrogen by spectrophotometric method and nitrate by calculation	PP 621-1.8 (ČSN ISO 7890-3)	Surface, waste and process water, solid waste extracts
1.9	Determination of total phosphorus by spectrophotometry	PP 621-1.9 (ČSN EN ISO 6878, TNV 757466)	Surface, waste and process water, solid waste extracts
1.10	Determination of chloride – titrimetric method	PP 621-1.10 (ČSN ISO 9297)	Surface, waste and process water, solid waste extracts
1.11	Determination of dissolved sulphate – gravimetric method	PP 621-1.11 (TNV 757476)	Surface, waste and process water, solid waste extracts
1.12	Determination of pH - electrometric method	PP 621-1.12 (ČSN ISO 10523)	Surface, waste and process water, solid waste extracts
1.13	Determination of conductivity	PP 621-1.13 (ČSN EN 27888)	Surface, waste and process water, solid waste extracts
1.14	Determination of COD _{Cr} – titration method	PP 621-1.14 (ČSN ISO 6060)	Surface, waste and process water, solid waste extracts
1.15	Determination of suspended solids (SS), dissolved solids (DS) and dissolved inorganic salts (DIS) – by gravimetric method	PP 621-1.15 (ČSN EN 872; ČSN 757346; ČSN 757347)	Surface, waste and process water, solid waste extracts
1.16	Determination of nitrogen content by LECO analyzer – method by reducing melting in inert gas	PP 621-1.17 (ČSN 42 0525)	Steel, cast iron, iron

¹ asterisk at the ordinal number identifies the tests, which the Laboratory is qualified to carry out outside the permanent laboratory premises

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- ² if the document identifying the test procedure is dated, only these specific procedures are used. If the document identifying the test procedure is not dated, the latest edition of the specified procedure is used (including any changes)

Annex:

Flexible scope of accreditation

Ordinal numbers of tests
<i>1.1 to 1.16</i>

The Laboratory is allowed to modify the test methods listed in the Annex within the specified scope of accreditation provided the measuring principle is observed. The flexible approach to the scope of accreditation cannot be applied to the tests not included in the Annex.

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2. 622 - Metallographic Laboratory

Tests:

Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Subject of the test
1.1	Evaluation of material microstructure	PP 622-2.1 (ČSN 42 0003; ČSN EN 10052:1996; ČSN 42 0015; ČSN 42 0461:1996; ČSN 42 1240; ČSN 42 0469; ČSN EN ISO 6520-1; ČSN EN ISO 945-1	Steel, cast iron, non-ferrous metals
1.2	Determination of grain size	PP 622-2.2 (ČSN EN ISO 643; ČSN EN ISO 2624)	Steel
1.3	Determination of the content of non-metallic inclusions	PP 622-2.3 (ČSN ISO 4967; DIN 50 602:1985)	Steel
1.4	Determination of depth and thickness of surface-treated layers and depth of decarburization	PP 622-2.4 (ČSN EN ISO 3887; ČSN EN ISO 1463)	Steel, cast iron
1.5	Detection of material defects	PP 622-2.5 (ČSN 42 1240; ČSN 42 0015; ČSN 42 0060; ČSN EN ISO 6520-1	Steel, cast iron, non-ferrous metals
1.6	Examination of corrosion failure	PP 622-2.6 (ČSN 03 8137)	Steel
1.7	Testing of macrostructure by etching and sulphide imprints	PP 622-2.7 (ČSN 42 0467; ISO 4968; ISO 4969; ČSN EN ISO 17639)	Steel, cast iron

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Annex:

Flexible scope of accreditation

Ordinal numbers of tests
<i>1.1 to 1.7</i>

The Laboratory is allowed to modify the test methods listed in the Annex within the specified scope of accreditation provided the measuring principle is observed. The flexible approach to the scope of accreditation cannot be applied to the tests not included in the Annex.

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3. 623 - Mechanical Properties Laboratory

Tests:

Ordinal number¹	Test procedure / method name	Test procedure / method identification²	Subject of the test
1.1	Performance of tensile tests	PP 623-3.1 (ČSN EN ISO 6892-1; ČSN EN ISO 6892-2; ČSN EN ISO 6892-3; ČSN 42 0330; ASTM E8; ČSN EN ISO 5178; ČSN EN ISO 4136)	Metallic materials, welds
1.2*	Hardness tests	PP 623-3.2 (ČSN EN ISO 6506-1; ČSN EN ISO 6507-1; ČSN EN ISO 9015-1; ČSN EN ISO 6508-1; DIN 50190-3:1975; ČSN EN ISO 18203; ASTM A956:2017; ČSN EN ISO 18265; ČSN EN ISO 16859-1)	Metallic materials
1.3	Impact bend test	PP 623-3.3 (ČSN ISO 148-1; ČSN EN ISO 9016)	Metallic materials, welds
1.4	Fracture toughness test	PP 623-3.4 (ČSN EN ISO 12737; ASTM E1820:2020; ASTM E1290; ASTM E399)	Metallic materials
1.5	Drop weight test (DWTT test)	PP 623-3.5 (API RP 5L3:2014; ČSN EN 10274; ASTM E436:2003; ČSN 42 0346)	Metallic materials
1.6	Bend test	PP 623-3.6 (ČSN EN ISO 7438; ČSN EN ISO 5173; ČSN EN ISO 178)	Metallic materials, welds, plastics

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- ¹ asterisk at the ordinal number identifies the tests, which the Laboratory is qualified to carry out outside the permanent laboratory premises
- ² if the document identifying the test procedure is dated, only these specific procedures are used. If the document identifying the test procedure is not dated, the latest edition of the specified procedure is used (including any changes)

Annex:

Flexible scope of accreditation

Ordinal numbers of tests
<i>1.1 to 1.6</i>

The Laboratory is allowed to modify the test methods listed in the Annex within the specified scope of accreditation provided the measuring principle is observed. The flexible approach to the scope of accreditation cannot be applied to the tests not included in the Annex.

Explanatory notes:

DWTT Drop-Weight Tear Test

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4. 624 - Corrosion Laboratory

Tests:

Ordinal number ¹	Test procedure/method name	Test procedure/method identification ²	Tested object
1.1	Determination of resistance of corrosion-resistant steel and Ni alloys to intergranular corrosion	PP 624-4.1 (ČSN EN ISO 3651-1; ČSN EN ISO 3651-2, method A; ASTM A262, Methods C, E; GOST 6032:1989, Method AM)	Metallic materials
1.2	Guidelines for the introduction of scribe marks through coatings on metallic panels for corrosion testing	PP 624 -4.2 (ČSN EN ISO 17872)	Coatings
1.3	Gravimetric determination of mass per unit area	PP 624-4.3 (ČSN EN ISO 1460; ČSN EN 10244-2; ČSN EN 10240; ČSN EN 10346)	Hot dip galvanized coatings
1.4	Corrosion test in condensation-water atmospheres	PP 624-4.4 (ČSN EN ISO 6270-2; ASTM D 2247)	Metallic materials, coatings
1.5	Corrosion test in salt spray	PP 624-4.5 (ČSN EN ISO 9227, NSS method, AASS method; ASTM B 117)	Metallic materials, coatings
1.6	Cyclic corrosion tests	PP 624-4.6 (ČSN EN ISO 11997-1, B cycle; PV 1210: 2010)	Metallic materials, coatings
1.7	Chemical resistance tests	PP 624-4.7 (ČSN EN ISO 2812-1; ČSN EN ISO 2812-2; ČSN EN ISO 2812-3; ČSN EN ISO 2812-4; VDA 621-412:1985)	Metallic materials, coatings

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Ordinal number ¹	Test procedure/method name	Test procedure/method identification ²	Tested object
1.8	Evaluation of corrosion degradation	PP 624-4.8 (ČSN EN ISO 4628-1; ČSN EN ISO 4628-2; ČSN EN ISO 4628-3; ČSN EN ISO 4628-4; ČSN EN ISO 4628-5; ČSN EN ISO 4628-8; ČSN EN ISO 4628-10; ASTM D 610; ČSN EN ISO 10289)	Metallic materials, metallic and other inorganic coatings, paint and varnish coatings
1.9	Cross-cut test	PP 624-4.9 (ČSN EN ISO 2409)	Paint and varnish coatings

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Annex:

Flexible scope of accreditation

Ordinal numbers of tests
<i>1.1 to 1.9</i>

The Laboratory is allowed to modify the test methods listed in the Annex within the specified scope of accreditation provided the measuring principle is observed. The flexible approach to the scope of accreditation cannot be applied to the tests not included in the Annex.

Explanatory notes:

NSS Neutral Salt Spray

AASS Acetic Acid Salt Spray

VDA Standard of the German Association of the Automotive Industry

PV Automotive Industry Standard – Volkswagen AG, SRN